

Circular economy and (agriculture) food system

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Linear economy and food system: introduction

Our current food production and consumption habits are unsustainable.

As per different estimates, approximately 30%–50% of food intended for human consumption is wasted at different stages of the food system.

Current inefficiency in the food economy means we lose productivity, energy, and natural resources, and also bear the costs of throwing food away.

More pollution and greenhouse gases are also created as a result of these processes.



Circular economy and food system: introduction (1)

Circular economy applies several principles from nature:

1. production out of waste,
2. resilience through diversity,
3. the use of renewable energy sources,
4. systems thinking,
5. cascading flows of materials and energy

Circular economy regarding the food system implies:

1. reducing the amount of waste generated in the food system,
2. re-use of food,
3. utilization of by-products and food waste,
4. nutrient recycling,
5. changes in diet toward more diverse and more efficient food patterns.

In the transition towards sustainability, interestingly, **small-scale experiments** offer opportunities for local, and also national, policy development.



Circular economy and food system: introduction (2)

Transition towards Circular Economy in the Food System

Circular economy regarding the food system implies:

- 1) reducing the amount of waste generated in the food system,
- 2) reuse of food, utilization of by-products and food waste,
- 3) nutrient recycling.



The measures must be implemented both at the **producer and consumer levels**, and finally in the **food waste and surplus management**.

Circular economy and food system: Potential solutions and policies suggested (1)

FOOD PRODUCTION (1)

Examples of Experiments

Manure. Recovery of nutrients from manure helps to avoid losses, contributes to resource savings, and provides resilience to agricultural producers. Treatment of manure calls for new technological innovations to overcome the problem of nutrient imbalance both globally and locally.

Policies and Solutions

Support the use of recovered and recycled nutrients as a partial substitution for imported nutrients to tackle nutrient imbalance

Use holistic approach for nutrient flow regulation: coordinated and comprehensive policy packages to regulate nutrient flows, close the loops and prevent leakages; demand “origin passports” for nutrients (phosphorus) to verify sustainable sources and encourage recovery rather than importing



Circular economy and food system: Potential solutions and policies suggested (1)

FOOD PRODUCTION (2)

Examples of Experiments

Smart agriculture and local food movement. A renewed interest in direct sale from farmers to customers with various new innovations is increasing. Community Supported Agriculture, food circle buying clubs, seasonal food box subscriptions, on-line farm shops are ongoing experiments. Benefits include reduced packaging, improved product freshness and transparency, shorter supply chains, and developing relationships between farmers and consumers.

Policies and Solutions

Support local farming through various policy tools (investment support, tax incentives for nutrient recovery and subsequent re-use, improve opportunities to sell local foods locally)

Support local producers who “de-specialize” or already practice mixed farming, i.e., have both animal and plant production and use manure for nutrients or support larger-scale infrastructures, where recycling of nutrients from manure and waste to field is organized in a holistic way



Circular economy and food system: Potential solutions and policies suggested (2)

Food consumption (1)

Examples of Experiments

“**Less but better meat**” is a strategy that promotes consuming smaller portions of meat obtained from extensive production, such as organic or free-range.

“**Dumpster diving**” is a radical experiment where mainly young people collect free food that has been thrown out by supermarkets. but is still edible

Policies and Solutions

Educate consumers about food, food chains, effects on environment, sustainability, waste management and packaging

Demand more transparency, proper labelling and information about the product and sustainability of its production processes and raw materials (e.g., carbon footprint)

Introduce more rigid control over labelling and claims



Circular economy and food system: Potential solutions and policies suggested (3)

Food waste and surplus management (1)

Examples of Experiments

Creating added value from material considered as waste (e.g., Animals produce manure and bacteria, which can be used to produce biogas).

Ban for supermarkets on throwing away food waste

Policies and Solutions

Promote sustainable food production and consumption practices throughout the whole food supply chain:

- Close material loops at every stage possible
- Support local energy production using manure from farms as local energy source or composting of bio-waste to produce
- gas locally
- Revise food standards (“ugly” food is not waste!)
- Remove legal barriers at the institutional level in order to ease the redistribution of unclaimed food
- Support consumers’ sustainable choices in packaging, deposit-and-refund schemes and recycling

